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SUMMARY

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PRINCIPLES UNDERLYING THE COMPLEX UTILIZATION OF WATER RESOURCES OF THE UKRAINE

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PRINCIPLES UNDERLYING THE COMPLEX UTILIZATION OF WATER RESOURCES OF THE UKRAINE

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1. The present paper is devoted to the complex utilization of water in the Ukrainian Soviet Socialist Republic where water resources are relatively small. Calculated per head of the population or per km^2 of territory, the water resources of the Ukrain are 5-6 times smaller than in the United States; 3-4 times than in France; 1.5 times smaller than in Poland; 10-12 times than for the Soviet Union as a whole.

The flow of the Ukrainian rivers is subject to great fluctuations as the floods provide from 66 to 75 percent of its annual volume. More or less efficient utilization of the Ukrainian water resources is possible only through the regulation of the river flow by means of storage reservoirs.

2. The water balance of the Ukraine for the period up to 1980 shows that local water resources can meet the requirements of the economic development of the Republic if the greater part of the flow is stored up, the discharge of water into the sea reduced materially, sewage, and industrial and communal waste waters are used extensively. In the more distant future it will be necessary to channel water to the Ukraine from the water-rich regions of the USSR.

3. The principles of complex utilization of water are illustrated by the utilization of the Republics main water artery, the Dnieper, for power generation, transportation, irrigation, water supply, and fish-breeding.

The implementation of the plan for the utilization of the water resources of the Dnieper will make it possible for the Ukraine to receive 3,400 kw of reserve power capable of producing 10,000,000,000 kwh within the single power grid of the Republic, and to create a deep waterway from the sea to the mouth of the Pripyat, which can be eventually extended to connect the Black Sea with the Baltic Sea and be included in the "European River Navigation System".

The regulated flow of the Dnieper will make it possible to irrigate up to 4.5 million hectares of land in the Ukraine, and to secure high stable crop yields, -- this figure can be boosted to 7.2 million if other sources of water for irrigation can be secured. Capital investments made in the construction of irrigation systems and factories for processing agricultural products will be repaid within three years.

4. Canals, which were built, are being built, or still to be built in the Ukraine, -- the Northern Donets-Donbas, the Dnieper-Krivoy Rog, the Kakhovka - North Crimea, the Dniester-Odessa -- illustrate the complex utilization of water resources involving territorial re-distribution of water.

5. Hydro-meteorological service: short-term and long-term hydrological forecasts; the working out of operational plans for storage reservoirs, for pre-spring periods, especially, which are aimed at national utilization of water, -- is illustrated by the example of the chain of reservoirs in the Dnieper.

6. Water conservation plays an important role in the ever-growing utilization of Ukrainian water resources cleaning and subsequent use of industrial and communal waste waters; elaboration of technological charts envisaging the minimal comsumption of fresh water; substantiation of water consumption rates for irrigation, time-limits for watering, and methods of bringing water to plants. The last point is of special significance for the Ukraine--though irrigation has been started there not so long ago, irrigated farming will eventually become the main user of water.

S - 449 E - Jan.1963 - 1,600